EXOSKELETON ASSISTIVE WALKING (EAWA) DEVICE

MOTIVATION
- A FOURTH-YEAR CAPSTONE PROJECT, CURRENTLY IN ITS EIGHTH YEAR RUNNING
- ITAD INNOVATES AND DEVELOPS ROBOTICS AND THE HEALTHCARE ENVIRONMENT
- ALLOWING CLINICIANS TO USE TELEPRESENCE TO PROVIDE CARE REMOTELY
- TELEPRESENCE IN HEALTH, ASSISTIVE DEVICES, INDEPENDENT LIVING

PAST PROJECTS
- VERSATILE ASSISTIVE ROAMING DEVICE (VARS)
- AUTOMATED BEDSIDE ASSISTANT (ABA)

DESIGN GOALS
- SUPPORT 40% OF USERS' BODY WEIGHT
- FOR USE WITH STROKE PATIENTS AND INCOMPLETE SPINAL CORD INJURIES
- SUPPORT DURING REHABILITATION ‘NORMAL’ GAIT
- LOWER LIMB EXOSKELETONS SHOWN TO BE EFFECTIVE IN REHABILITATING WALKING ABILITY

ACHIEVEMENTS
- COMPLETE DESIGN OF EXOSKELETAL CHASSIS
- ACTUATION OF SINGLE-LEG HIP AND KNEE JOINTS
- EXPLORATION OF EMG SIGNALS AND USER INTENTION

TEAMS
- EMG BASED CONTROL
- BIOMEDICAL DESIGN & HUMAN FACTORS
- MECHANICAL DESIGN
- CONTROLS & SENSING
- SOFTWARE & ELECTRONICS

OPEN TO:
ALL STUDENTS IN:
- DEPARTMENT OF MECHANICAL AND AEROSPACE
- DEPARTMENT OF SYSTEMS AND COMPUTER ENGINEERING
- DEPARTMENT OF ELECTRONICS

ONE SMALL STEP FOR MAN